

REMARKS

Claims 1-42 are pending in the application. Claims 1-42 have been rejected. Portions of the Specification have also been objected to. Reconsideration and withdrawal of the rejections set forth in the Office Action dated June 24, 2004 is respectfully requested.

Claims 1-42 are rejected under 35 U.S.C. § 103(a) as obvious over Brown Elliott, et al. (Pub. No.: US 2003/0117423) in view of Senda, et al., (Pub. No.: US 2002/0047822 A1). This rejection is respectfully traversed.

Applicant does not concede the propriety of this rejection. Regarding claim 1, Applicant claims:

1. A pixel display circuit comprising:
a pixel matrix, the pixel matrix having a first pixel component corresponding to a first color, a second pixel component corresponding to a second color, a third pixel component corresponding to a third color, a fourth pixel component corresponding to the first color, and a fifth pixel component corresponding to the second color, each of the pixel components being coupled to a charge storage device and an associated switching device to control activation of each selection of the pixel components, each charge storage device receiving a pulse from a previous line prior to activation of the associated switching device.

Thus, Applicant claims a charge storage device and switching device for each pixel component. Brown Elliott suggests that pixel components can share charge storage devices and switching devices at Fig. 5 and paragraph 0045. At best, Brown Elliott is unclear on this point. This does not meet Applicant's claim element of "each of the pixel components being coupled to a charge storage device and an associated switching device[.]" Thus, Brown Elliott fails to provide a claim element which the Office Action indicates is present.

Furthermore, Senda is said to provide the element of each storage device receiving a pulse from a previous line prior to activation of the associated switching device. However,

Senda is illustrated to provide a pulse to a capacitor while each associated transistor is activated. See Figs. 33 and 38 of Senda for example. This does not meet the Applicant's claim of "each charge storage device receiving a pulse from a previous line prior to activation of the associated switching device." Therefore, Senda fails to provide a claim element which the Office Action indicates is present.

Additionally, the combination of Brown Elliott and Senda is impermissible – it is neither suggested nor appropriate. Brown Elliott relates to an actual color LCD. Senda, by contrast, is intended to provide circuitry useful for evaluating various different pixel configurations – it is intended to allow for experimentation and testing, and is not apparently for use in large-scale manufacturing. See paragraph 0013 of Senda. Moreover, Senda addresses the issue of how to display information encoded digitally, whereas conventional displays (such as Brown Elliott) use analog data. See paragraph 0011 of Senda.

Moreover, there is no suggestion to combine Brown Elliott with Senda. If anything, Brown Elliott and Senda teach in different directions, with Senda emphasizing gray-scale displays for example. Similarly, Brown Elliott teaches a more conventional LCD whereas Senda teaches a system for testing potential display configurations. Thus, the combination of Brown Elliott and Senda may only result from a hindsight reconstruction of the Applicant's claimed invention.

Regarding claim 13, Applicant claims:

13. An LCD pixel display having a plurality of pixels, each of the pixels having a plurality of at least five subpixel elements having paired gate lines, a representative subpixel element comprising:
a capacitor; the capacitor adapted to receive a first control signal; and a switch, the switch adapted to receive a second control signal, the switch being coupled to the capacitor and the switch being coupled to the subpixel element

such that the capacitor receives the first control signal before the switch receives the second control signal.

Thus, Applicant claims a capacitor and switch for each subpixel element. Brown Elliott suggests that pixel elements can share capacitors and switches at Fig. 5 and paragraph 0045. At best, Brown Elliott is unclear on this point. This does not meet Applicant's claim element of "a representative subpixel element comprising: a capacitor; ... and a switch[.]" Thus, Brown Elliott fails to provide a claim element which the Office Action indicates is present.

Furthermore, Senda is said to provide the element of each capacitor receiving a pulse from a previous line prior to activation of the associated switch. However, Senda is illustrated to provide a pulse to a capacitor while each associated transistor is activated. See Figs. 33 and 38 of Senda for example. This does not meet the Applicant's claim. Therefore, Senda fails to provide a claim element which the Office Action indicates is present.

Additionally, the combination of Brown Elliott and Senda is impermissible – it is neither suggested nor appropriate. Brown Elliott relates to an actual color LCD. Senda, by contrast, is intended to provide circuitry useful for evaluating various different pixel configurations – it is intended to allow for experimentation and testing, and is not apparently for use in large-scale manufacturing. See paragraph 0013 of Senda. Also, Senda addresses the issue of how to display information encoded digitally, whereas conventional displays (such as Brown Elliott) use analog data. See paragraph 0011 of Senda.

Moreover, there is no suggestion to combine Brown Elliott with Senda. If anything, Brown Elliott and Senda teach in different directions, with Senda emphasizing gray-scale displays for example. Similarly, Brown Elliott teaches a more conventional LCD whereas

Senda teaches a system for testing potential display configurations. Thus, the combination of Brown Elliott and Senda may only result from a hindsight reconstruction of the Applicant's claimed invention.

Regarding claim 17, Applicant claims:

17. An LCD pixel display comprising:
a plurality of pixels, each pixel further comprising a plurality of at least five subpixels with an associated paired gate line, wherein each subpixel further comprises a sample and hold circuit wherein a first charging signal is applied prior to the releasing the sample and hold circuit.

Thus, Applicant claims a paired gate line for each subpixel. Neither Brown Elliott nor Senda suggests that subpixels have paired gate lines, and this is not mentioned in the Office Action. Thus, both Brown Elliott and Senda fail to provide a claim element.

Additionally, the combination of Brown Elliott and Senda is impermissible – it is neither suggested nor appropriate. Brown Elliott relates to an actual color LCD. Senda, by contrast, is intended to provide circuitry useful for evaluating various different pixel configurations – it is intended to allow for experimentation and testing, and is not apparently for use in large-scale manufacturing. See paragraph 0013 of Senda. Also, Senda addresses the issue of how to display information encoded digitally, whereas conventional displays (such as Brown Elliott) use analog data. See paragraph 0011 of Senda.

Moreover, there is no suggestion to combine Brown Elliott with Senda. If anything, Brown Elliott and Senda teach in different directions, with Senda emphasizing gray-scale displays for example. Similarly, Brown Elliott teaches a more conventional LCD whereas Senda teaches a system for testing potential display configurations. Thus, the combination of Brown Elliott and Senda may only result from a hindsight reconstruction of the Applicant's claimed invention.

Regarding claim 19, Applicant claims:

19. In a pixel array for an LCD display having a plurality of pixels each of said pixels having a group of subpixels, a first and second of said subpixels corresponding to a first color, a third subpixel corresponding to a second color and a fourth and fifth subpixel corresponding to a third color comprising: a first means for switching associated with one of said first subpixel; a second means for switching associated with the other of said second subpixel; a third means for switching associated with said third subpixel; a fourth means for switching associated with said fourth subpixel, a fifth means for switching associated with said fifth subpixel; each of said first, second, third, fourth and fifth switching means having a corresponding means for storing a charge; said switching means being coupled to a gate line such that each of said switching means is opened after each of said means for storing a charge is charged and in which the gate lines are paired.

Thus, Applicant claims a means for storing a charge and switching means for each subpixel element. Brown Elliott suggests that pixel elements can share means for storing a charge and switching means at Fig. 5 and paragraph 0045. At best, Brown Elliott is unclear on this point. This does not meet Applicant's claim element of "each of said first, second, third, fourth and fifth switching means having a corresponding means for storing a charge[.]" Thus, Brown Elliott fails to provide a claim element which the Office Action indicates is present.

Furthermore, Senda is said to provide the element of each means for storing a charge receiving a charge prior to activation of the associated switching means. However, Senda is illustrated to provide a pulse to a capacitor while each associated transistor is activated. See Figs. 33 and 38 of Senda for example. This does not meet the Applicant's claim. Therefore, Senda fails to provide a claim element which the Office Action indicates is present.

Additionally, the combination of Brown Elliott and Senda is impermissible – it is neither suggested nor appropriate. Brown Elliott relates to an actual color LCD. Senda, by

contrast, is intended to provide circuitry useful for evaluating various different pixel configurations – it is intended to allow for experimentation and testing, and is not apparently for use in large-scale manufacturing. See paragraph 0013 of Senda. Also, Senda addresses the issue of how to display information encoded digitally, whereas conventional displays (such as Brown Elliott) use analog data. See paragraph 0011 of Senda.

Moreover, there is no suggestion to combine Brown Elliott with Senda. If anything, Brown Elliott and Senda teach in different directions, with Senda emphasizing gray-scale displays for example. Similarly, Brown Elliott teaches a more conventional LCD whereas Senda teaches a system for testing potential display configurations. Thus, the combination of Brown Elliott and Senda may only result from a hindsight reconstruction of the Applicant's claimed invention.

Regarding claim 20, Applicant claims:

20. A method for controlling an LCD pixel display having a plurality of pixels, each of the pixels of the plurality of pixels having a plurality of subpixel elements having paired gate lines, comprising the steps of: charging a capacitor with a first control signal; and activating a transistor with a second control signal, the transistor being electrically coupled to the capacitor, and the transistor being coupled to at least one of the plurality of subpixel elements, such that the capacitor receives the first control signal before the switch receives the second control signal.

Thus, Applicant claims a paired gate line for each subpixel. Neither Brown Elliott nor Senda suggests that subpixels have paired gate lines, and this is not mentioned in the Office Action. Thus, both Brown Elliott and Senda fail to provide a claim element.

Moreover, Senda is said to provide the element of the capacitors receiving a charge prior to activation of the associated transistors. However, Senda is illustrated to provide a pulse to a capacitor while each associated transistor is activated. See Figs. 33 and 38 of

Senda for example. This does not meet the Applicant's claim. Therefore, Senda fails to provide a claim element which the Office Action indicates is present.

Additionally, the combination of Brown Elliott and Senda is impermissible – it is neither suggested nor appropriate. Brown Elliott relates to an actual color LCD. Senda, by contrast, is intended to provide circuitry useful for evaluating various different pixel configurations – it is intended to allow for experimentation and testing, and is not apparently for use in large-scale manufacturing. See paragraph 0013 of Senda. Also, Senda addresses the issue of how to display information encoded digitally, whereas conventional displays (such as Brown Elliott) use analog data. See paragraph 0011 of Senda.

Moreover, there is no suggestion to combine Brown Elliott with Senda. If anything, Brown Elliott and Senda teach in different directions, with Senda emphasizing gray-scale displays for example. Similarly, Brown Elliott teaches a more conventional LCD whereas Senda teaches a system for testing potential display configurations. Thus, the combination of Brown Elliott and Senda may only result from a hindsight reconstruction of the Applicant's claimed invention.

Regarding claim 25, Applicant claims:

25. A method for controlling an LCD pixel display having a plurality of pixels, each of the pixels of the plurality of pixels having a plurality of subpixel elements, the LCD display being controlled substantially according to a clock signal, comprising the steps of:
charging a capacitor with a first control signal during a first clock period, the first clock period occurring substantially immediately before a second clock period;
activating a transistor with a second control signal during the second clock period, the transistor being electrically coupled to the capacitor, and the transistor being coupled to at least one of the plurality of subpixel elements, the transistor coupling a data signal in the second clock cycle to at least one optical output associated with the at least one of the plurality of subpixel elements,

transmitting an optical signal from the at least one optical output at least partially in response to the data signal.

Thus, Senda is said to provide the element of the capacitors receiving a control signal in a clock cycle different from the clock cycle for activation of the associated transistors. However, Senda is illustrated to provide a pulse to a capacitor while each associated transistor is activated. See Figs. 33 and 38 of Senda for example. This does not meet the Applicant's claim. Therefore, Senda fails to provide a claim element which the Office Action indicates is present.

Additionally, the combination of Brown Elliott and Senda is impermissible – it is neither suggested nor appropriate. Brown Elliott relates to an actual color LCD. Senda, by contrast, is intended to provide circuitry useful for evaluating various different pixel configurations – it is intended to allow for experimentation and testing, and is not apparently for use in large-scale manufacturing. See paragraph 0013 of Senda. Also, Senda addresses the issue of how to display information encoded digitally, whereas conventional displays (such as Brown Elliott) use analog data. See paragraph 0011 of Senda.

Moreover, there is no suggestion to combine Brown Elliott with Senda. If anything, Brown Elliott and Senda teach in different directions, with Senda emphasizing gray-scale displays for example. Similarly, Brown Elliott teaches a more conventional LCD whereas Senda teaches a system for testing potential display configurations. Thus, the combination of Brown Elliott and Senda may only result from a hindsight reconstruction of the Applicant's claimed invention.

Regarding claim 30, Applicant claims:

30. An apparatus for controlling an LCD pixel display having a plurality of pixels, each of the pixels of the plurality of pixels having a plurality of subpixel elements having paired gate lines, comprising:
electrical means for charging a capacitor with a first control signal; and
control means for activating a transistor with a second control signal, the transistor being electrically coupled to the capacitor, and the transistor being coupled to at least one of the plurality of subpixel elements, such that the capacitor receives the first control signal before the switch receives the second control signal.

Thus, Applicant claims a paired gate line for each subpixel. Neither Brown Elliott nor Senda suggests that subpixels have paired gate lines, and this is not mentioned in the Office Action. Thus, both Brown Elliott and Senda fail to provide a claim element.

Moreover, Senda is said to provide the element of the capacitors receiving a control signal prior to the associated transistors receiving a control signal. However, Senda is illustrated to provide a pulse to a capacitor while each associated transistor is activated. See Figs. 33 and 38 of Senda for example. This does not meet the Applicant's claim. Therefore, Senda fails to provide a claim element which the Office Action indicates is present.

Additionally, the combination of Brown Elliott and Senda is impermissible – it is neither suggested nor appropriate. Brown Elliott relates to an actual color LCD. Senda, by contrast, is intended to provide circuitry useful for evaluating various different pixel configurations – it is intended to allow for experimentation and testing, and is not apparently for use in large-scale manufacturing. See paragraph 0013 of Senda. Also, Senda addresses the issue of how to display information encoded digitally, whereas conventional displays (such as Brown Elliott) use analog data. See paragraph 0011 of Senda.

Moreover, there is no suggestion to combine Brown Elliott with Senda. If anything, Brown Elliott and Senda teach in different directions, with Senda emphasizing gray-scale

displays for example. Similarly, Brown Elliott teaches a more conventional LCD whereas Senda teaches a system for testing potential display configurations. Thus, the combination of Brown Elliott and Senda may only result from a hindsight reconstruction of the Applicant's claimed invention.

Regarding claim 34, Applicant claims:

34. An apparatus for controlling an LCD pixel display having a plurality of pixels, each of the pixels of the plurality of pixels having a plurality of subpixel elements, the LCD display being controlled substantially according to a clock signal, comprising the steps of:
charging means for charging a capacitor with a first control signal during a first clock period, the first clock period occurring substantially immediately before a second clock period;
activating means for activating a transistor with a second control signal during the second clock period, the transistor being electrically coupled to the capacitor, and the transistor being coupled to at least one of the plurality of subpixel elements, the transistor coupling a data signal in the second clock cycle to at least one optical output associated with the at least one of the plurality of subpixel elements,
light emitting means for transmitting an optical signal from the at least one optical output at least partially in response to the data signal.

Thus, Senda is said to provide the element of the capacitors receiving a control signal in one clock cycle prior to the associated transistors receiving a control signal in another clock cycle. However, Senda is illustrated to provide a pulse to a capacitor while each associated transistor is activated. See Figs. 33 and 38 of Senda for example. This does not meet the Applicant's claim. Therefore, Senda fails to provide a claim element which the Office Action indicates is present.

Additionally, the combination of Brown Elliott and Senda is impermissible – it is neither suggested nor appropriate. Brown Elliott relates to an actual color LCD. Senda, by contrast, is intended to provide circuitry useful for evaluating various different pixel configurations – it is intended to allow for experimentation and testing, and is not apparently

for use in large-scale manufacturing. See paragraph 0013 of Senda. Also, Senda addresses the issue of how to display information encoded digitally, whereas conventional displays (such as Brown Elliott) use analog data. See paragraph 0011 of Senda.

Moreover, there is no suggestion to combine Brown Elliott with Senda. If anything, Brown Elliott and Senda teach in different directions, with Senda emphasizing gray-scale displays for example. Similarly, Brown Elliott teaches a more conventional LCD whereas Senda teaches a system for testing potential display configurations. Thus, the combination of Brown Elliott and Senda may only result from a hindsight reconstruction of the Applicant's claimed invention.

Regarding claim 39, Applicant claims:

39. An LCD pixel display having a plurality of pixels, each of the pixels having a plurality of at least five subpixel elements having paired gate lines, a representative subpixel element comprising:
a storage means; the storage means adapted to receive a first control signal;
and
a switch means, the switch means adapted to receive a second control signal, the switch means coupled to the storage means and the switch means being coupled to the subpixel element such that the storage means receives the first control signal before the switch means receives the second control signal.

Thus, Applicant claims a paired gate line for each subpixel. Neither Brown Elliott nor Senda suggests that subpixels have paired gate lines, and this is not mentioned in the Office Action. Thus, both Brown Elliott and Senda fail to provide a claim element.

Moreover, Senda is said to provide the element of the storage means receiving a control signal prior to the associated switch means receiving a control signal. However, Senda is illustrated to provide a pulse to a capacitor while each associated transistor is activated. See Figs. 33 and 38 of Senda for example. This does not meet the Applicant's

claim. Therefore, Senda fails to provide a claim element which the Office Action indicates is present.

Additionally, the combination of Brown Elliott and Senda is impermissible – it is neither suggested nor appropriate. Brown Elliott relates to an actual color LCD. Senda, by contrast, is intended to provide circuitry useful for evaluating various different pixel configurations – it is intended to allow for experimentation and testing, and is not apparently for use in large-scale manufacturing. See paragraph 0013 of Senda. Also, Senda addresses the issue of how to display information encoded digitally, whereas conventional displays (such as Brown Elliott) use analog data. See paragraph 0011 of Senda.

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Propriety of Brown Elliott as Prior Art

Applicant further renews its contention that the rejection over the combination of Brown Elliott and Senda is improper because Brown Elliott is not properly prior art to the present application. Applicant understands Brown Elliott to have a filing date of October 22, 2002. The Office Action specifically cites to Figs. 11A and 11B of Brown Elliott in rejecting the claims. Figs. 11A and 11B are present only in the continuation-in-part application published as US 2003/0117423, which has the priority date of October 22, 2002. The present application was filed on January 15, 2002. The application upon which Brown Elliott

depends for priority is US 2004/0046714 and it does not include Figs. 11A and 11B.

Accordingly, the Brown Elliott reference cited is not prior art to this application, and cannot form the basis of any rejections of claims. As each claim is rejected based on a combination of Brown Elliott and Senda, Applicant submits that the claim rejections are improper and accordingly should be withdrawn, or that the finality of the present rejection should be withdrawn in favor of a potential rejection over proper prior art.

Dependent Claims

The dependent claims not specifically addressed each depend from an independent claim discussed above and shown to be patentable over the prior art. Accordingly, each dependent claim is also allowable. Applicant does not concede the rejections of the dependent claims, but does not address these rejections as these claims have been shown to be allowable.

Deposit Account Authorization and Extension of Time Request

Authorization is hereby given to charge any deficiencies and credit any overages to Deposit Account number 50-2207, including any funds necessitated due to an accompanying check being drawn on an account with insufficient funds. To the extent necessary and not otherwise requested, Applicant requests an Extension of Time to respond to the Office Action, and requests that the fee for such an extension be charged to Deposit Account number 50-2207.

Conclusion

In view of the foregoing, the claims pending in the application comply with the requirements of 35 U.S.C. § 112 and patentably define over the applied art. A Notice of Allowance is, therefore, respectfully requested. Alternatively, withdrawal of the final rejections in favor of an action based on proper prior art is requested. If the Examiner has any questions or believes a telephone conference would expedite prosecution of this application, the Examiner is encouraged to call the undersigned at (650) 838-4328.

Respectfully submitted,
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Date: September 29, 2004

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